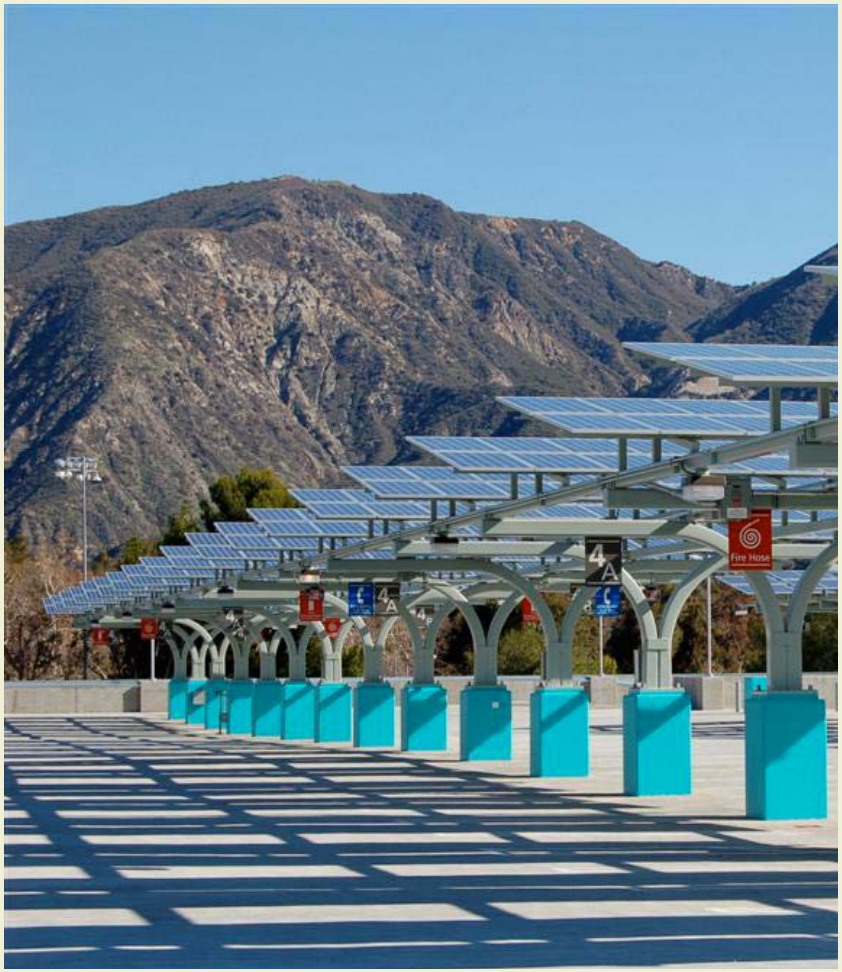
Education for a Green Region

Mona Field

Community Colleges Tackle Climate Change and Economic Development through Green Curriculum and Sustainable Building



Climate Change and the Future of Southern California

Depleting natural resources, escalating energy consumption and record high fuel prices are spiraling out of control. The planet's existence and our survival depend on countering this reality, balancing necessity and conservation with solutions that lead us toward a carbon-neutral world.

In the fight against global warming, other nations are ahead of the United States. For instance, Israel is a global pioneer, perhaps best known for its creation of the drip irrigation system that it popularized and exported to global markets. Also ahead of the United States is Europe, which implemented an European Union Sustainable Development Strategy focusing on clean energy solutions, sustainable transport, consumption, and production conservation, among other areas.

While California has been known as a center of innovation, we are behind much of the world when it comes to sustainability. Community colleges are playing a major role in taking the initiative forward, and the Los Angeles Community College District (LACCD) is helping to lead the effort through education, training and a $2.2 billion construction program to create new and renovated sustainable buildings.

The California Situation

California is renowned as a green issues trend-setter. It was the first to implement a statewide green building code, as well as the first to pass

a plan to reduce carbon emissions (Assembly Bill 32 - Pavley/Nunez). From the governor's office to the local level, leadership continues to raise awareness of green issues, both legislatively and by executive order.

With massive population increases on the way,[1] California faces the challenge of accommodating new growth while reducing its environmental impact. Since buildings are major energy users[2] and huge contributors to global warming,[3] building green is the only option for meeting demand and reducing carbon emissions.

Leading the way is LACCD, which serves approximately 36 cities in Los Angeles County and covers more than 882 square miles. The District's nine colleges educate and train the region's diverse workforce. In 2002, after voters approved bond funding to renovate and build new campus facilities, the LACCD Board of Trustees (BOT) adopted a sustainability policy, which required "green" buildings. The District was a frontrunner and won international recognition for promoting green building several years ahead of many other public and private entities. As a result, LACCD is undergoing one of the largest public sector sustainable building efforts in the nation, with all new buildings being constructed to meet Leadership in Energy and Environmental Design (LEED™) standards.

The District's innovative programs and services are a catalyst for change and success for more than three million students, and the sustainable construction effort is evident throughout the Los Angeles basin. There are integrated solar farms at East Los Angeles, Southwest, Mission and Pierce Colleges; a natural-light filled Maintenance and Operations building at L.A. Valley College; a water-saving botanic garden that serves as a "living classroom" at Pierce College; and many others examples of new green buildings.

The District is a leader in other ways as well. In April 2005, LACCD became one of the first community college districts to join the California Climate Action Registry. In September 2007, the District contracted for independent verification of its annual greenhouse gas emissions with a goal of reducing the district's contribution to global climate change.

Moving toward clean energy and a 'green' economy in Southern California

As we move into the new global economy, green innovation will have a greater impact on Southern California than ever before. Venture capital funds are being allocated to green technology companies across the state,[4] and these investments could account for 52,000 to 114,000 high-quality jobs and $11 to $25 billion in yearly revenue to California by 2010.

The emerging solar industry is one promising area that shows tremendous potential for growth. A forecast from the American Solar Energy Society reported that renewable energy and energy-efficient industries were responsible for the creation of nearly 8.5 million jobs in 2006. By 2030, the number of direct and indirect jobs related to these sectors is expected to reach 40 million. For Southern California, solar-related firms currently employ between 5,900 and 6,900 workers with 73 percent of surveyed employers planning to hire more employees over the next year.[5]

By partnering with renewable energy leaders, such as Chevron Energy Solutions, MMA Renewable Ventures and Southern California Edison, the District's goal of energy independence is becoming reality. At East Los Angeles College (ELAC), a 1.2 megawatt solar project now provides nearly 45 percent of the College's energy needs, saving ELAC and the District an estimated $270,000 annually. ELAC's installation was made possible through the sophisticated use of a Power Purchase Agreement and federal tax incentives.

Such alliances are typical of the steps that can be taken to achieve green goals. LACCD is also one of 11 Clinton Climate Change Initiative (CCI) partners to launch a pilot program that will help dramatically reduce greenhouse gas emissions by upgrading campus buildings without using capital budgets or increasing monthly operating expenses.

Reuse, Recycle, Reduce: An eco-lifestyle and green economy just make cents

Reducing the amount of waste headed to local landfills is one of the top priorities for LACCD. The District reuses wood, concrete and asphalt at construction sites and donates used and surplus office furniture items to local nonprofits. Through a Zero Landfill policy, approximately 98 percent of LACCD's surplus items are kept from reaching local landfills by selling, donating or recycling.

Showing people how their individual contributions can help reduce our carbon footprint is part of the larger strategy for greening the District. Recycling is widely considered one of the easiest ways to help the environment, and the District has retained a consultant to ensure that all nine colleges have vibrant recycling programs, including educating all students, employees and visitors about the reasons to recycle and the correct use of campus bins. Additionally, in order to close the recycling loop, virtually all of the newly purchased carpeting and furniture procured by LACCD comes from manufacturers who use recycled materials in their products.

With the region's water supplies becoming more scarce, the District is also following a variety of water reduction strategies, including the use of drought-resistant plants and waterless urinals, which are expected to collectively save nearly 50 million gallons of water each year.

Health is also an important factor to consider. According to Larry H. Eisenberg, LACCD's Director of Facilities Planning and Sustainability, colleges designed with proper ventilation and non-toxic construction materials have been shown to improve student and employee health and produce better student performance. Attention to site planning and adequate day lighting has been shown to heighten student performance by as much as 25 percent.[6] Eisenberg also suggests that lower operating costs are another measurable benefit of "going green."

Training for a 'green' labor force - A Green Curriculum for the Future

Nationally, community colleges are responsible for training and educating 11 percent of the workforce. In order to promote a sustainability curriculum, LACCD launched a Green College Initiative & Curriculum program. The curriculum covers workforce development programs such as architecture, solar installation, alternative fuels, water supply, waste water, and sustainable construction. In addition, in courses from the academic fields of biology, geography, geology, sociology and many other disciplines, faculty are revising course content so that every student has a chance to learn about sustainability during their studies at our colleges.

At the district's most centrally located campus, just south of downtown Los Angeles, Los Angeles Trade-Technical College has a range of green-related courses and programs that range from alternative fuels and emissions

reduction in the Diesel Technology Program to a Water Supply Technology two-year degree with an emphasis in water purification. Currently the college has 52 green-integrated courses and four green-related degree and certificate programs in career-technical, science, health, and liberal arts programs.

At Los Angeles Valley College, in the heart of the San Fernando Valley, Environmental Studies courses provide interdisciplinary views and expose students to all the issues relating to planetary sustainability.

Staying on the path toward energy independence

The District's Sustainability Policy is the key to its future energy independence. To facilitate this goal, the District is implementing a ground-breaking Renewable Energy program involving solar, wind and geothermal sources, and energy storage techniques such as hydrogen-generation and local storage. On average, each of the nine colleges uses approximately one megawatt of electricity per year. By continually increasing the amount of self-generating power (through the use of PV panels and/or other renewable energy sources), the District is moving toward producing enough electricity to meet each college's needs. "Getting off the grid" will make LACCD truly a national model.

Conclusion

Although many challenges remain, sustainable building and green education offer great promise to offset global warming and give a new generation of workers the skills needed to improve their quality of life. While the notion of climate neutrality can seem elusive, energy independence is the only real solution to slowing, and ultimately reversing, climate change. For LACCD, how effectively we train and educate our communities in the new green economy will likely shape our future. The work we have started offers great promise for the next generation.

About the Author

Mona Field is currently Vice President of the Board of Trustees for the Los Angeles Community College District. She is the author of numerous articles on education, labor and the environment, as well as two college textbooks, "*California Government and Politics Today*" and "*The People and Promise of California*". She is Professor of Political Science at Glendale Community College, and has served as a member of the Board of Governors of the Faculty Association of the California Community Colleges.

Additional Resources

Los Angeles Community College District Builds Green
http://www.laccdbuildsgreen.org

Los Angeles Community College District
http://www.laccd.edu

Endnotes

1. Southern California Association of Governments (SCAG), The Compass Vision report (2004)
2. Environmental Protection Agency, Building Codes Fact Sheet http://www.epa.gov/cleanrgy/documents/buildingcodesfactsheet.pdf
3. The National Institute of Building Sciences' (NIBS) Whole Building Design Guide
4. Natural Resources Defense Council, L.A. Economic Conditions/ LACCD Bond Impact Report (2004)
5. 2008 Solar Energy & Workforce Study: The Economic and Workforce Development, California Community Colleges
6. Planet Green Game, Top 10 Green Tips, Global Green USA/Starbucks Coffee